**Power Electronics / Installation technique**

**Softstarter and Softstop device IL 9017/300**

**ministart**

- Increases life of 1-phase squirrel motors and mechanical drives
- For single phase motors up to 1.5 kW
- Adjustable ramp time/deceleration time and starting torque/deceleration torque
- Semiconductors will be bridged after start up
- LED indication
- Width 35 mm

**Function diagram**

These softstart units are electronic devices designed to enable 1-phase induction motors to start and stop smoothly. By phase control the current is slowly ramped up and down allowing the motor torque to build up and decrease slowly. It provides shock free start and stop of the motor. Sudden changes of the torque as on direct start and stop do not appear any more. This feature allows an economic construction of the mechanical connected elements and prevents damage to conveyed material on conveyor systems.

When the motor is up to full speed the semiconductors in IL 9017 are bridged to prevent internal power losses and heat build up.

**Indication**

- LED green: softstart active
- LED yellow: softstart is finished, short flashing when mains frequency is outside limits

**Block diagram**

All technical data in this list relate to the state at the moment of edition. We reserve the right for technical improvements and changes at any time.
Notes
The motor load must always be connected as continuous operation of the
softstart with no load may cause overheating of the motor and softstart. It is recommended that the softstart is protected by superfast semiconductor
fuses rated as per the current rating of the softstart or motor. However, standard line and motor protection is acceptable, but for high starting
frequencies motor winding temperature monitoring is recommended.

Technical data
Nominal voltage $U_N$: AC 230 V
Nominal motor power $P_N$: 1.5 kW
Min. motor power: approx. 10 % of rated motor power
Nominal current: 10 A
External fuse (optional)
superfast: 20 A
Starting torque/ deceleration torque:
ramp-up time/ deceleration time: 20 ... 70 %
Recovery time: 200 ms
Switching frequency: 10/h at $I_{\text{r}}/\tan = 10$ s, $\vartheta = 20$°
Power consumption: 1.4 VA

General data
Operating mode: continuous operation
Temperature range: 0 ... + 55 °C
Storage temperature: - 25 ... + 75 °C
Clearance and creepage
distances
overvoltage category /
contamination level: 4 kV / 2 IEC 60 664-1
EMC
Electrostatic discharge: 8 kV (air) IEC/EN 61 000-4-2
HF irradiation: 10 V / m IEC/EN 61 000-4-3
Fast transients: 2 kV IEC/EN 61 000-4-4
Surge voltages
between wires for power supply: 1 kV IEC/EN 61 000-4-5
between wire and ground: 2 kV IEC/EN 61 000-4-5
HF wire guided: 10 V IEC/EN 61 000-4-6
Interference suppression: Limit value class B EN 55 011
Degree of protection:
Housing: Thermoplastic with V0 behaviour according to UL subject 94
Terminals: IP 20 IEC/EN 60 529
Housing: EN 50 005
Wire connection:
2 x 2.5 mm² solid or
2 x 1.5 mm² stranded ferruled DIN 46 228-1/-2/-3
Wire fixing:
Flat terminals with self-lifting clamping piece IEC/EN 60 999-1
Mounting:
DIN rail IEC/EN 60 715
Weight: 135 g

Dimensions
Width x height x depth: 35 x 90 x 61 mm

Standard type
IL 9017/300 AC 230 V 1.5 kW
Article number: 0058831
Nominal voltage $U_N$: AC 230 V
For motors up to 1.5 kW
Width: 35 mm

Adjustment facilities
Ramp up/deceleration time: With potentiometer $t_{\text{on-off}}$ the ramp up and
deceleration time can be adjusted within the range 0.1 to 10 s.
Starting and deceleration torque: With potentiometer $M_{\text{on-off}}$ the starting
torque and the deceleration torque can be adjusted in the range of 20 to
70 % of the max. value.

Setup procedure
1. Set potentiometer $M_{\text{on-off}}$ fully anti-clockwise
   Set potentiometer $t_{\text{on-off}}$ fully clockwise
2. Start motor by closing contact input Q1-Q2. If the motor does not
   start, interrupt the process and adjust $M_{\text{on-off}}$ to a higher value. New
   start.
3. Adjust potentiometer $t_{\text{on-off}}$ to give the desired ramp time.
   Stop and restart the motor, re-adjusting the potentiometers until the
   desired starting characteristics are achieved.

Attention: If the ramp-up time is adjusted to short, the internal
bridging contact closes before the motor is on full speed.
This may damage the bridging relay. Changes on potentiometer settings are only accepted in
the waiting for start status.

Safety instruction
- Never clear a fault when the device is switched on
- The user must ensure that the device and the necessary components
  are mounted and connected according to the locally applicable
  regulations and technical standards.
- Adjustments may only be carried out by qualified specialist staff and
  the applicable safety rules must be observed.

Application example

IL9017/300 SL9017/300 Q1 K1 Aus
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F1
A
K1
K0
K0
K1
K1
Q1
K1
M
1 ~
F1
Aus

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